

METHODS AND APPARATUS FOR THERMALLY BONDING LUBRICANT  
TO A DISK SURFACE WITH USE OF A HEATING ELEMENT FORMED  
IN A MAGNETIC HEAD

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ABSTRACT OF THE DISCLOSURE

A method of thermally bonding lubricant over a surface of a magnetic disk in a disk drive involves providing a heat source at an air bearing surface (ABS) of a magnetic head; causing the heat source to be energized to produce heat; and causing the magnetic head to be moved across a surface portion of a magnetic disk so that lubricant is thermally bonded over the surface portion from the heat produced by the heat source. Preferably, this lubricant bonding mode of operation is performed on a regular or periodic basis. Alternatively, the mode is activated based on a predetermined environmental condition (e.g. temperature or humidity) or from an external signal. In one example, the heat source is comprised of first and/or second pole pieces of the magnetic head through which an electrical current is passed. In another example, the heat source is comprised of a separate heating element which is formed on or within the magnetic head (which may be the same heating element utilized for thermal-assist writing to the magnetic disk). In yet another example, heat for thermally bonding lubricant is generated by reading data from a data block on the magnetic disk and writing the data back to the data block in a repetitive fashion.